What Is Claimed Is:

1.   A method for reconstructing topological information for a mesh, said mesh comprising a polygonal soup of triangles with sides and vertices,

5   said method comprising the steps of:

building vertex and edge connectivity data;

finding duplicates of vertices;

removing said duplicates of vertices; and

realigning strips of triangles without common

10   vertices.

2.   The method as set forth in claim 1 wherein said step of building vertex and edge connectivity data comprises the steps of:

generating a representative index;

15   creating a vertex-neighbor table; and

building an edge-neighbor table.

3.   The method as recited in claim 2 wherein said step of generating a representative index comprises eliminating at least one duplication of

20   vertices.

4.   The method as recited in claim 2 wherein said step of removing duplicate vertices comprises:

searching for unconnected sides of triangles;

searching for duplicates of the vertices at

25   the ends of said unconnected sides;

replacing all duplicate vertices with original vertices;

adding triangles connected to the duplicate vertices to said original vertices; and

rebuilding said edge-neighbor table for all triangles connected to said original vertices.

5.   The method as set forth in claim 4 wherein said step of adding triangles comprises splitting the triangles into new smaller triangles.

6.   The method as set forth in claim 4 wherein said step of searching for duplicates comprises searching in said vertex-neighbor table for the closest vertex.

7.   The method as set forth in claim 6 wherein said step of searching for the closest vertex comprises using an OctTree structure.

8.   The method as set forth in claim 6 wherein said step of searching for the closest vertex comprises using a log2-complexity search method.

9.   The method as set forth in claim 8 wherein said log2-complexity search method comprises using an OctTree structure.